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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,990	10/31/2003	Dan Meacham	AIELP008	8866

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EXAMINER

SHINGLETON, MICHAEL B

ART UNIT	PAPER NUMBER
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2817

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/698,990

Applicant(s)

MEACHAM

Examiner

Michael B. Shingleton

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 9-24 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Species I in the reply filed on 5-10-2005 is acknowledged.

Applicant alleges that claims 1-16 and 25 read on the elected species of Figure 2A. Such is not correct. For example claim 9 recites that the variable frequency generator includes a "direct digital synthesizer". This is directed to the species of Figure 2B and the elected species Figure 2A does not have a "direct digital synthesizer" and thus claim 9 is withdrawn from consideration. Also note that the direct digital synthesizer described in the specification does not have a signal generator connected to a fast-switching component and accordingly the specification does not describe the direct digital synthesizer as having a signal generator connected to a fast-switching component. Likewise claim 10 recites a digital to analog converter in addition to a direct digital synthesizer, yet the elected species to Figure 2A does not include a digital to analog converter. Claim 10 is directed toward the species of Figure 2B as well. Accordingly claim 10 is withdrawn from consideration. Claim 11 is dependent on claim 10 and accordingly is withdrawn for the same reasons as claim 10. Claim 12 recites an injection-locked synthesizer wherein the fixed frequency signal is inputted. This is not part of the elected species of Figure 2A but is directed to non-elected species of Figure 3A. Note that only injection-locked synthesizer disclosed in a variable frequency generator (Figure 3A) has a connection to the fixed frequency 300 and does not have a separate signal generator wherein variable frequency generator is not connected to the fixed frequency generator as required by the elected invention. Accordingly, claim 12 is withdrawn from consideration. Similarly, claims 13 and 14 are directed to the non-elected species of Figure 3A. Accordingly claims 13 and 14 are withdrawn from consideration. Claim 15 and 16 recite a delay locked loop which is not part of the elected species but is directed to the non-elected species of Figure 4. Note that only delay locked loop disclosed in a variable frequency generator (Figure 4) has a connection to the fixed frequency 400 and does not have a separate signal generator wherein variable frequency generator is not connected to the fixed frequency generator as required by the elected invention. Claims 15 and 16 are directed to the non-elected invention. Accordingly, claims 15 and 16 are withdrawn from consideration.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4 and 25 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Haag 3,579,121 (Haag).

Figure 2 and the relevant text of Haag discloses a frequency synthesizer having a fixed frequency generator S, a variable frequency generator T and a mixer R that combines the fixed frequency signal and the variable frequency signal to provide a scanning pulse (See column 3, around line 40 and claim 4 around line 40 and lines 50.). The device of Haag is clearly a "frequency synthesizer" because the device of Haag is fully capable of providing signals at different frequencies. This is done through the use of the variable frequency generator T just like that of Applicant's invention. Note that the frequency of the scanning pulse is made dependent on a "time scale" (See column 3, around line 34) and thus the scanning pulse frequency is changed. Furthermore when the output frequency is switched from one to another this is referred to by Applicant as "frequency hopping". Frequency switching is a far better term to describe the changing of one frequency to another. It is noted that applicant has not provided a specific definition for the term "fast-hopping output signal". The examiner must give the broadest reasonable interpretation to the claims consistent with the specification (See MPEP 2111). Applicant only recites that "a variable frequency generator 252 that outputs a signal with frequencies that quickly varies" (See page 6 of the original specification.). The examiner also must give the plain meaning to the words of a claim when applicant has not provided any specific definition for such words. Thus since applicant has not defined how fast "fast" is and how quick "quick" is and the plain meaning of the terms fast and quick can cover a huge range of "speeds". Thus when the output of the variable frequency generator of Haag is varied, i.e. changed, this changed is seen as being "fast-hopping" or "quick", as fast and quick covers a huge range of speeds. The variable frequency generator of Haag does not show the output of the variable frequency generator that is connected back to other components of the variable generator and thus it would be improper to assume that Haag shows the output of the variable frequency generator that is connected back to other components of the variable generator. The device of Haag clearly provides for the method of claim 25 as the structure above provides for the claimed steps as noted above. For example the fixed frequency generator generates a fixed frequency (Also See column 3 around line 40 of Haag).

Claims 1, 4, 5, 7, 8 and 25 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Zeinstra et al. 5,479,155 (Zeinstra).

Figure 5 and the relevant text of Zeinstra discloses a frequency synthesizer and method for frequency synthesization having structure/steps of providing a fixed frequency generator 61 that generates a fixed frequency, providing a variable frequency generator that includes a signal generator 62 that generates a plurality of generated signals which the fast switching component 57 operates on (Note the feedback circuit composed of at least element 82.). The fast switching component is considered to be part of the variable frequency generator. The two frequency generators mentioned above are combined via a mixer 60 (Also see column 2, around line 60). Furthermore when the output frequency is switched from one to another this is referred to by Applicant as "frequency hopping". Frequency switching is a far better term to describe the changing of one frequency to another. It is noted that applicant has not provided a specific definition for the term "fast-hopping output signal". The examiner must give the broadest reasonable interpretation to the claims consistent with the specification (See MPEP 2111). Applicant only recites that "a variable frequency generator 252 that outputs a signal with frequencies that quickly varies" (See page 6 of the original specification.). The examiner also must give the plain meaning to the words of a claim when applicant has not provided any specific definition for such words. Thus since applicant has not defined how fast "fast" is and how quick "quick" is and the plain meaning of the terms fast and quick can cover a huge range of "speeds". Thus when the output of the variable frequency generator of Zeinstra is varied, i.e. changed, this changed is seen as being "fast-hopping" or "quick", as fast and quick covers a huge range of speeds. Note that the arrangement of Zeinstra is a transceiver because of the antennas 80 and 73. Note that the fast switching component configures the signal generator via the lines 109 in Zeinstra.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haag 3,579,121 (Haag).

Figure 2 and the relevant text of Haag discloses a frequency synthesizer having a fixed frequency generator S, a variable frequency generator T and a mixer R that combines the fixed frequency signal and the variable frequency signal to provide a scanning pulse (See column 3, around line 40 and claim 4

around line 40 and lines 50.). The device of Haag is clearly a “frequency synthesizer” because the device of Haag is fully capable of providing signals at different frequencies. This is done through the use of the variable frequency generator T just like that of Applicant’s invention. Note that the frequency of the scanning pulse is made dependent on a “time scale” (See column 3, around line 34) and thus the scanning pulse frequency is changed. Furthermore when the output frequency is switched from one to another this is referred to by Applicant as “frequency hopping”. Frequency switching is a far better term to describe the changing of one frequency to another. It is noted that applicant has not provided a specific definition for the term “fast-hopping output signal”. The examiner must give the broadest reasonable interpretation to the claims consistent with the specification (See MPEP 2111). Applicant only recites that “a variable frequency generator 252 that outputs a signal with frequencies that quickly varies” (See page 6 of the original specification.). The examiner also must give the plain meaning to the words of a claim when applicant has not provided any specific definition for such words. Thus since applicant has not defined how fast “fast” is and how quick “quick” is and the plain meaning of the terms fast and quick can cover a huge range of “speeds”. Thus when the output of the variable frequency generator of Haag is varied, i.e. changed, this changed is seen as being “fast-hopping” or “quick”, as fast and quick covers a huge range of speeds. The variable frequency generator of Haag does not show the output of the variable frequency generator that is connected back to other components of the variable generator and thus it would be improper to assume that Haag shows the output of the variable frequency generator that is connected back to other components of the variable generator. The device of Haag clearly provides for the method of claim 25 as the structure above provides for the claimed steps as noted above. For example the fixed frequency generator generates a fixed frequency (Also See column 3 around line 40 of Haag). Haag is silent on the settling rates of the variable frequency generator and the fixed frequency generator and accordingly is silent on the variable frequency generator settles substantially faster than the fixed frequency generator.

How fast these generators settles compared to one another is a result effective variable that is dependent on the quality of the components used, the values of these components, etc.. The selection of quality of these components, the values etc. and accordingly the selection of the settling time is the selection of a result effective variable that involves routine skill in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to selected the settling times of the two generators via the selection of the values of the components, the

selection of the quality of these components such that the variable frequency generator settles substantially faster than the fixed frequency generator, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Also note that “substantially” is a broad term See In re Nehrenberg (CCPA) 126 USPQ 383.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki US2004/0101033 (Suzuki) in view of Haag 3,579,121 (Haag) or in view of Zeinstra et al. 5,479,155 (Zeinstra).

Suzuki discloses a UWB radio transmission/receiver arrangement that includes a typical frequency synthesizer 101. Suzuki is silent on the combining of the transmission and receiver in one unit, i.e. a transceiver and is silent on the details of the frequency synthesizer.

Figure 2 and the relevant text of Haag discloses a frequency synthesizer having a fixed frequency generator S, a variable frequency generator T and a mixer R that combines the fixed frequency signal and the variable frequency signal to provide a scanning pulse (See column 3, around line 40 and claim 4 around line 40 and lines 50.). The device of Haag is clearly a “frequency synthesizer” because the device of Haag is fully capable of providing signals at different frequencies. This is done through the use of the variable frequency generator T just like that of Applicant’s invention. Note that the frequency of the scanning pulse is made dependent on a “time scale” (See column 3, around line 34) and thus the scanning pulse frequency is changed. Furthermore when the output frequency is switched from one to another this is referred to by Applicant as “frequency hopping”. Frequency switching is a far better term to describe the changing of one frequency to another. It is noted that applicant has not provided a specific definition for the term “fast-hopping output signal”. The examiner must give the broadest reasonable interpretation to the claims consistent with the specification (See MPEP 2111). Applicant only recites that “a variable frequency generator 252 that outputs a signal with frequencies that quickly varies” (See page 6 of the original specification.). The examiner also must give the plain meaning to the words of a claim when applicant has not provided any specific definition for such words. Thus since applicant has not defined how fast “fast” is and how quick “quick” is and the plain meaning of the terms fast and quick can cover a huge range of “speeds”. Thus when the output of the variable frequency generator of Haag is varied, i.e. changed, this changed is seen as being “fast-hopping” or “quick”, as fast and quick covers a huge range of speeds. The variable frequency generator of Haag does not show the output of the variable frequency generator that is connected back to other components of the variable generator and thus it would be improper to assume that Haag shows the output of the variable frequency generator that is connected back

to other components of the variable generator. The device of Haag clearly provides for the method of claim 25 as the structure above provides for the claimed steps as noted above. For example the fixed frequency generator generates a fixed frequency (Also See column 3 around line 40 of Haag).

Figure 5 and the relevant text of Zeinstra discloses a frequency synthesizer and method for frequency synthesization having structure/steps of providing a fixed frequency generator 61 that generates a fixed frequency, providing a variable frequency generator that includes a signal generator 62 that generates a plurality of generated signals which the fast switching component 57 operates on (Note the feedback circuit composed of at least element 82.). The fast switching component is considered to be part of the variable frequency generator. The two frequency generators mentioned above are combined via a mixer 60 (Also see column 2, around line 60). Furthermore when the output frequency is switched from one to another this is referred to by Applicant as "frequency hopping". Frequency switching is a far better term to describe the changing of one frequency to another. It is noted that applicant has not provided a specific definition for the term "fast-hopping output signal". The examiner must give the broadest reasonable interpretation to the claims consistent with the specification (See MPEP 2111). Applicant only recites that "a variable frequency generator 252 that outputs a signal with frequencies that quickly varies" (See page 6 of the original specification.). The examiner also must give the plain meaning to the words of a claim when applicant has not provided any specific definition for such words. Thus since applicant has not defined how fast "fast" is and how quick "quick" is and the plain meaning of the terms fast and quick can cover a huge range of "speeds". Thus when the output of the variable frequency generator of Zeinstra is varied, i.e. changed, this changed is seen as being "fast-hopping" or quick as fast and quick covers a huge range of speeds. Note that the arrangement of Zeinstra is a transceiver because of the receive antennas 80 and 73. Note that the fast switching component configures the signal generator via the lines 109 in Zeinstra.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the frequency synthesizer of Suzuki with one that includes a fixed frequency generator and the variable frequency generator wherein the signals of these two generators are mixed to form the output of the frequency synthesizer because as the Suzuki reference is silent on the exact structure of the variable frequency oscillator one of ordinary skill in the art would have been motivated to use any art-recognized equivalent frequency synthesizer such as the conventional frequency synthesizer of either Haag or Zeinstra.

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As to the transceiver limitation, it is conventionally known that to form both in receiver and the transmitter in one unit so as to save space, make the device more portable, etc..

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the device of Suzuki in view of Haag or in view of Zeinstra as a transceiver so as to save space, make the transmitting/receiver arrangement more portable as is conventionally known in the art.

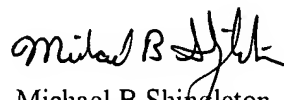
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Figure 9 of Lutz 3,714,822 discloses a frequency synthesizer having a fixed frequency source mixer with a variable frequency source with the frequency being "fast hopped" by the variable frequency generator. See column 5, line 27.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael B. Shingleton whose telephone number is (571) 272-1770.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal, can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306 and after July 15, 2005 the fax number will be 571-273-8300. Note that old fax number (703-872-9306) will be service until September 15, 2005.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MBS
July 15, 2005


Michael B Shingleton
Primary Examiner
Group Art Unit 2817